BACKGROUND INFORMATION DOCUMENT
THOMPSON-HAYWARD AGRICULTURE AND NUTRITION CO., INC.
5220 SPEAKER ROAD
KANSAS CITY, WYANDOTTE COUNTY
KANSAS 66106

FINAL REPORT

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) Region 7 Resource Conservation and Recovery Act (RCRA) Branch requested that Tetra Tech EM Inc. (Tetra Tech) prepare this background information document (BID) for the Thompson-Hayward Agriculture and Nutrition Co. (THAN) facility located at 5220 Speaker Road, Kansas City, Wyandotte County, Kansas 66106.

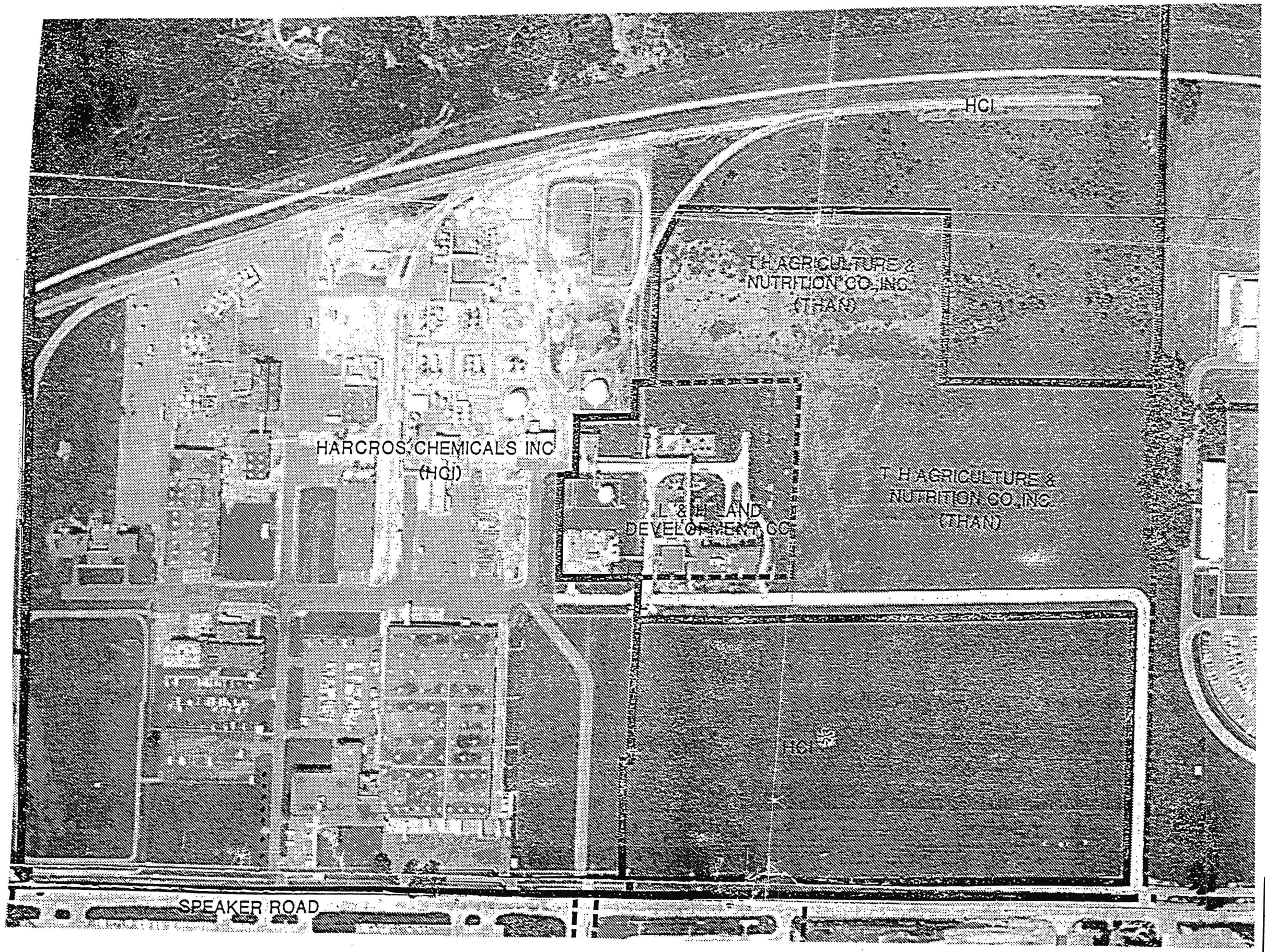
This BID summarizes the history and background of THAN based on a review of documents submitted to Tetra Tech EMI (Tetra Tech), EPA Region 7, Kansas Department of Health and Environment (KDHE), U.S. Fish and Wildlife Service (Kansas Field Office), the Nebraska State Climate Department and THAN. Site ownership and operations history of the site is complex, as properties have changed names and ownership throughout the years. This BID is specific to the THAN facility at 5220 Speaker Road with an EPA identification number of KSD099239717.

This report contains five sections including this introduction. Section 2 describes the facility. Section 3 describes the environmental setting. Section 4 discusses the facility's solid waste management unit and release history. References are included in Section 5.

2.0 FACILITY DESCRIPTION

Most of the following facility information was extracted from documents submitted to Tetra Tech by the sources listed in Section 1.0 " Introduction".

The THAN facility is located within a floodplain (behind a levee) approximately 1,500 feet south of the Kansas River within the Argentine Industrial District (Figure 1). The site encompasses a land parcel of 16 acres. The facility and surrounding area are zoned KM3–heavy industrial. The closest residential area is located just over one-half mile south of the facility. Surrounding residential areas are served by the City of Kansas City, Kansas, for potable water, and no private wells are located within one-half mile of the facility according to available information. Three industrial supply wells are located within a one-half mile radius of the facility (Burns & McDonnell 1996).



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T H AGRICULTURE & NUTRITION CO., INC. KANSAS CITY, KANSAS
FIGURE 1 PROPERTY BOUNDARIES
TETRA TECH EM INC.

surface water impoundment, was located in the northwest corner of the facility. This impoundment received wastewater overflow from an aeration pond west of the impoundment. The aeration pond is presently within the facility of Harcros Chemicals Inc. (Harcros). The impoundment last received wastewater in 1978. On August 20, 1984, a closure and groundwater monitoring plan for closure of the impoundment were approved by KDHE and EPA (KDHE 1989).

A d-calcium panthenate (vitamin-B5) manufacturing plant was constructed on a 4-acre lot east of the Thompson-Hayward Chemical Company (THCC) facility in 1974-1975, at 5150 Speaker Road, as part of a Joint Venture Agreement between THCC and Daiichi Seiyaku Co. (Daiichi), a Japanese pharmaceutical company. This plant was incorporated as "Daitom Inc." and produced vitamin-B5 from May 1979 to February 1983 under the Japanese patent for both human and animal consumption. The construction and operation of Daitom plant was an independent venture between THCC and Daiichi. THAN was a 50 percent owner of the plant and ceased ownership in 1984 when Daitom was sold to L & H Land Development Inc. This is discussed further in Section 2.1,"Facility History", of this document (THAN 1995).

In approximately 1958, THCC, owned by North American Phillips Corporation (NAP), now known as Phillips Electronics North American Corporation, commenced construction of the facility at 5200 Speaker Road, Kansas City, KS. The facility first became operational in December 1960. Initially the facility operations included wholesale distribution of industrial, dry cleaning, laundry chemicals and supplies, and agricultural chemicals, plus blending operations of phenoxy herbicides, and the formulation of pesticides. In approximately 1963, THCC began manufacturing herbicides, 2,4-dichlorophenoxyacetic acid (2,4-D), 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), and 2-(2,4,5-trichloroplenoxy) propionic acid (2,4,5-TP or Silvex). In approximately 1965, an ethoxylation plant was initiated, and a surface impoundment (overflow lagoon) was constructed to contain emergency releases of ethylene oxide. 2,4-D, 2,4,5-T, and Silvex were produced until the fall of 1978. The surface impoundment was closed in May 1988 pursuant to closure plan approved by EPA and KDHE (THAN 1995).

The Daitom plant was constructed in 1974-1975 as part of a Joint Venture Agreement between THCC and Daiichi Seiyaku Co. Limited (Daiichi), a Japanese pharmaceutical company. THCC and Daiichi incorporated "Daitom Inc." to construct and operate a plant for the production of d-calcium

pantothenate (vitamin B-5). The plant was constructed at 5150 Speaker Road on property transferred to Daitom Inc. by THCC. From May 1979 to February 1983 the plant produced vitamin B-5 for both human and animal consumption under a Japanese patent (THAN 1995).

On November 18, 1980, THCC submitted a RCRA part A permit application as a hazardous waste treatment, storage, and disposal facility. On the form THCC showed two ponds, an aeration pond and the overflow lagoon, as waste management units.

On March 20, 1981, H & C Acquisition Inc., a wholly owned subsidiary of Harrison and Crossfield, Limited (an English company), filed a certificate of incorporation in the State of Delaware (State of Delaware 1981).

By an agreement dated May 11, 1981, NAP/THCC agreed to sell the industrial chemical, textile maintenance, and pest control operations division of THCC located at 5200 Speaker Road as well as the name "Thompson-Hayward Chemical Company" to "H & C Acquisition Inc.. Assets to be sold included approximately 74 acres of land and the buildings located inside the levee, as well as the land north of the levee. The purchase did not include approximately 18 acres on which the Daitom facility and the former overflow lagoon were located. On the closing of the sale (which took place on June 12, 1981) H & C Acquisition Inc. became the owner and the operator of the facility at 5200 Speaker Road. At the closing on June 12, 1981, THCC and H & C Acquisition Inc. executed an agreement providing for transfer to H & C Acquisition Inc. of permit responsibility, coverage and liability at the facility at 5200 Speaker Road.

THCC's agriculture and nutrition division was retained as a wholly owned subsidiary of NAP and was renamed Thompson-Hayward Agriculture and Nutrition Company, Inc. (THAN). After the sale, THAN retained its interest in the Daitom venture. Immediately following the sale, H & C Acquisition Inc. changed its corporate name to Thompson-Hayward Chemical Company (THCC). On October 5, 1988, "Thompson-Hayward Chemical Company" filed a certificate of amendment, changing its corporate name to "Harcros Chemical Inc." (Harcros) (State of Delaware 1989). The corporate entity that purchased the facility at 5200 Speaker Road in 1981 will be referred as Harcros.

At the time of the 1981 sale to Harcros the facility contained two surface water impoundments. One was an aeration pond which served as a waste treatment unit for the 5200 Speaker Road manufacturing operation. This impoundment unit was included in the 1981 sale to Harcros. The second impoundment was a 3-acre emergency overflow lagoon located on the 16-acre property retained by THAN. This lined surface impoundment was constructed to handle the overflow from the aeration pond. THAN retained the ownership of the overflow lagoon after the sale to Harcros.

Before 1981, when THCC sold part of the plant, process water from the Daitom facility was sent to the aeration pond. For a brief period of time after the sale to Harcros, the aeration lagoon continued to receive and treat wastewater from the Daitom facility pursuant to an agreement with Harcros. Following the termination of that agreement (March 1, 1982), Daitom process wastewater was discharged directly into Kansas the City, Kansas publicly owned treatment works (POTW) system.

In November 1983, THAN filed a Part A application requesting a RCRA permit for the inactive overflow lagoon. According to the facility, the overflow lagoon was never used (THAN 1995).

The Daitom plant was not used for production purposes after February 1983. In May 1984, THAN applied for a provisional EPA ID number for the purpose of transporting and disposing of asbestos contaminated with sodium cyanide from the Daitom plant. The number assigned was KSP 000000027, valid from May 8 to June 8, 1984. THAN used the Daitom plant from June 1, 1984 to August 1, only for office space.

The Daitom plant was sold to L & H Land Development Corporation (Hodge) through a corporate entity called Hapleco. When Hodge received the quitclaim deed on November 8, 1984, THAN ceased to have any ownership interest in the property, but continued to own the 16-acre property at 5220 Speaker Road, which included the overflow lagoon. Hodge subsequently sold the property to Clarence Hochard. The specific date of this sale is not available.

In May 1988, THAN closed the overflow lagoon pursuant to a closure plan approved by EPA and KDHE.

3.0 ENVIRONMENTAL SETTING

The following sections describe the regional and facility specific climate, geology and hydrogeology. The environmental information is based on various sources as listed in the reference section.

3.1 Climate

Kansas City typically has temperatures averaging between 43.7° F to 63.6° F. The highest average monthly temperature is 88.7°F in July, and the lowest is 16.7° F in January. Normal annual precipitation is 37.62 inches. The highest average monthly precipitation is 5.04 inches in May, and the lowest is 1.09 inches in January. Average snowfall is 15.7 inches. Prevailing winds tend to be from north to southeast in the summer months and from north to northwest during the winter months. The highest average wind speeds occur in March at an average of 12.6 miles per hour (mph), and the lowest in August at 9.1 mph (Nebraska National Climate Office 1995).

3.2 Geology

Bedrock beneath the THAN facility is a part of the Kansas City and Pleasanton Groups of Pensylvanian age. These rocks are comprised primarily of limestone, with interbedded shale and sandstone, and are generally of a laterally continuous nature. The bluffs of the Kansas River valley, located on the either side of the site, are a part of Kansas City Group. The regional dip is about 8 feet per mile (approximately 0.08 degrees) to the northwest. The Kansas River alluvium, which lies directly beneath the site, consists of the fining-upward sequence of locally derived boulders, cobbles, and pebbles, to brown-grey arkosic sand and gravel, to fine sand, silt and silty clay. The lower part of this sequence was deposited as braided-stream glacial outwash during melting of glacial ice. The upper sandy-silty sequence was deposited as meandering-stream lag, point bar, overbank, and clay-filled abandoned stream-channel deposits. The alluvium thickens downstream and toward the stream channel, reaching a thickness of about 80 feet in the vicinity of the site (KDHE 1989). An east-west trending incised channel exists in the bedrock surface beneath and just south of the site. This feature could possibly affect the flow of dense downward-migrating constituents.

3.3 Hydrogeology

The uppermost aquifer in the vicinity of the site is the Kansas River alluvium. In the Kansas City area, the water produced from the Kansas River alluvium is mainly used for industrial purposes. Upstream of Kansas City, this water is an important water supply for farm irrigation, domestic, and public use. Depth of water in the Kansas River alluvium ranges from 1 to 50 feet and averages 25 feet below land surface. The saturated alluvium thickness in Wyandotte County ranges from less than 20 feet near the valley walls to more than 80 feet near the Kansas River channel (KDHE 1989).

Based on published lithologic logs, it appears that there are no significant, continuous confining clay layers in the zone of saturation and that the alluvial aquifer can be considered a single hydrologic unit. On the basis of four aquifer tests conducted in the alluvial deposits of Kansas River valley in Wyandotte County, transmissivity ranges from about 18,000 ft^2 to 32,0002 ft^2 per day. On the basis of a least - squares fit of transmissivity versus saturated thickness, the hydraulic conductivity of Kansas River alluvial deposits in Wyandotte County is approximately 700 feet per day. Well yields in the alluvilium can exceed 1,000 gallons per minute where saturation thickness is greater than 40 feet. Where the saturation thickness is less then 20 feet, wells can yield 500 gallons per minute. Consolidated rock formations that underlie the alluvial deposits in the area are generally thought to be poor aquifers, with yields of 10 gallons per minute or less. In the absence of additional quantitative data, the bedrock surface may be considered the lower hydraulic boundary of the overlying alluvial aquifer.

The alluvial aquifer is recharged primarily by precipitation and seepage from adjacent and underlying bedrock. Under normal river-stage conditions, groundwater flows northward toward the river in the vicinity of the site at a gradient of approximately 8 feet per mile and discharges into the river. During times of high river stage, however, short-term flow reversals may occur in the alluvial deposits. Flow reversals can extend from a few hundred to more than 3,000 feet from the river (KDHE 1989).

3.4 Endangered and Threatened Species

In accordance with Section 7 of the Endangered Species Act (16 U.S.C 1531 et seq.) The U.S Fish and Wildlife Service identified one threatened and five endangered species that may inhabit the vicinity of the THAN site (U.S. Fish and Wildlife Service 1995).

Threatened Status

The **piping plover** (*Chararius melodus*) is a small shore bird that may be a seasonal spring and fall migrant through portions of Kansas, particularly along the Kansas and Missouri Rivers. Plovers are associated with unvegetated shorelines, sandbars, and mudflats, using aquatic vertebrates for food.

Endangered Status

The **peregrine falcon** (*Falco pperegrinus*) is widespread but uncommon migrant throughout Kansas, most often seen in spring and fall. Peregrines use wetlands and open areas, such as water bodies, crop fields and grasslands, primarily preying on other birds. A pair established an active nesting territory in downtown Topeka in 1993.

The **bald eagle** (*Haliaeetus leucocephalus*) may be expected to occur at any river or any reservoir in Kansas during winter months. Eagles will utilize wetlands and open areas where large trees provide perch sites in proximity to open water, where they feed on fish and waterfowl. A first nest was documented in 1989, increasing to five nesting sites in 1994.

The **least tern** (*Sterna antillarum*) may be expected to occur as a spring or fall migrant through the State of Kansas. It uses unvegetated shorelines, sandbars, and mudflats, feeding primarily on small fish.

The **pallid sturgeon** (*Scaphirhynchus albus*) is a moderately large bottom-dwelling fish that has historically occurred in portions of the Missouri River and lower Kansas River. It may require sandbars chutes and backwater areas for reproduction.

Meed's milkweed (*Asclepias meadii*) is a perennial broad leaf plant associated with unbroken tallgrass prairie. It generally occurs in small population or scattered as individuals.

In a document entitled " Threatened and Endangered Species Known or Likely to Occur in Wyandotte County, Kansas," the Kansas Department of Wildlife and Parks lists several other species not found on the U.S. Fish and Wildlife list They include five threatened and two endangered species.

Threatened Status

Chestnut lamprey (*Ichthyomyzon castaneus*) is a fish known to occasionally inhabitat in the lower Kansas River. It spawns over clean gravel in small tributary streams.

Northern Redbelly Snake (*Storeria occipitomaculata*) inhabits moist, mature upland woodland which has dense leaf litter, rocks and other debris for cover.

Silverband Shiner (*Notropis shumardi*) Prefers moderately deep areas of flowing waters over sand and gravel substrate.

Snowy Plover (*Charadrius alexanderinus*) is an occasional transient or summer visitor at sparsely vegetated wetlands and impoundment shorelines.

Western Earth Snake (*Virginia valeriae elegans*) habitats rocky hillsides in or near moist woodlands where rocks, logs, or leaf litter may provide cover.

Endangered Status

American Burying Beetle (*Necrophorous americanus*) inhabits suitable grasslands and upland woods. This species is endangered nationally.

Eskimo Curlew (*Numenius borealis*) was a regular spring transient using bare fields and heavily grazed or burned grasslands. This species is endangered nationally.

4.0 SOLID WASTE MANAGEMENT UNIT

A solid waste management unit (SWMU) is defined, in 40 CFR 261.2 and Final RFA Guidance (1986) as "any discernible (solid) waste unit used at a RCRA facility from which hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous waste." The former surface impoundment (overflow lagoon) was identified as the only SWMU at the

THAN facility. The following sections describe the SWMU and discusses its waste characteristics and summarizes the history of releases from the unit.

4.1 Unit Description

The THAN former surface impoundment, now closed, was constructed in 1973 in an existing natural drainage (see photos 1 & 2 taken from the roof top of the Daitom building, Appendix). The dimensions of the impoundment were approximately 600 feet by 210 feet with original berm heights of 7 feet from the bottom of the impoundment. The impoundment was lined with two layers of 10-mil polyethylene and covered with 6 inches of soil (KDHE 1984, KDHE 1989).

From 1974 to 1978, the former surface impoundment received wastewater from the aeration pond located to the west of the impoundment. The surface impoundment ceased receiving waste in 1978 and underwent closure in 1988 in accordance with a closure plan approved by EPA and KDHE.

4.2 Waste Characteristics

A comprehensive groundwater monitoring evaluation (CME) was conducted by KDHE and recommended that THAN implement an assessment monitoring program. Following this recommendation, THAN installed four monitoring wells (see photo 3, Appendix).

As reported in the CME presented by KDHE (1989), analysis of sediment samples taken from below the liner during closure detected 1,800 parts per billion (ppb) 2,4,5-T; 2,650 ppb 2,4,5-TP and 330 ppb chlordane. In January 1987, THAN installed four groundwater monitoring wells on the periphery of the former impoundment. Contaminants were detected in all four wells. Cyanide was detected at a concentration of 0.05 micrograms/liter.

4.3 History of Release

Releases to the soil beneath the liner have been documented as discussed in section 4.2 above.

Releases to the groundwater may have occurred from this unit as well as from the aeration pond located at the adjacent Harcros facility. It is unclear whether release to the groundwater can be attributed to this unit. The unit is located in Argentine Industrial District of Kansas City, Kansas. Pesticide/herbicide contamination has been detected in groundwater beneath adjacent facility. An RFA has been conducted for Harcros facility. Investigation of possible impact on groundwater from the aeration pond at Harcros facility is ongoing.

Because contaminants detected are not volatile compounds no releases would occur to subsurface soil gas.

Included in memorandum dated August 3, 1987 from KDHE (Richard Flanary) to THAN describes soil removal activities at the site and steps taken to control the release of the contaminated soil dust to the air. Rail cars used to haul the soil were lined with tarp and covered with plastic, and secured. Based on this memorandum, it can be concluded that any release to the air would have be minimal.

5.0 REFERENCES

Burns & McDonnell. 1996. Draft RCRA Facility Investigation Report, Harcros Chemicals, Inc. Kansas City, Kansas. April 1.

Kansas Department of Health and Environment (KDHE). 1984. KDHE Hazardous Waste Compliance Evaluation Inspection Report, (August 24) and Transmittal Letter from KDHE to THAN. September 7.

KDHE. 1989. *KDHE Comprehensive Groundwater Evaluation of THAN Facility, Wyandotte County, Kansas, Parts I and II.* April.

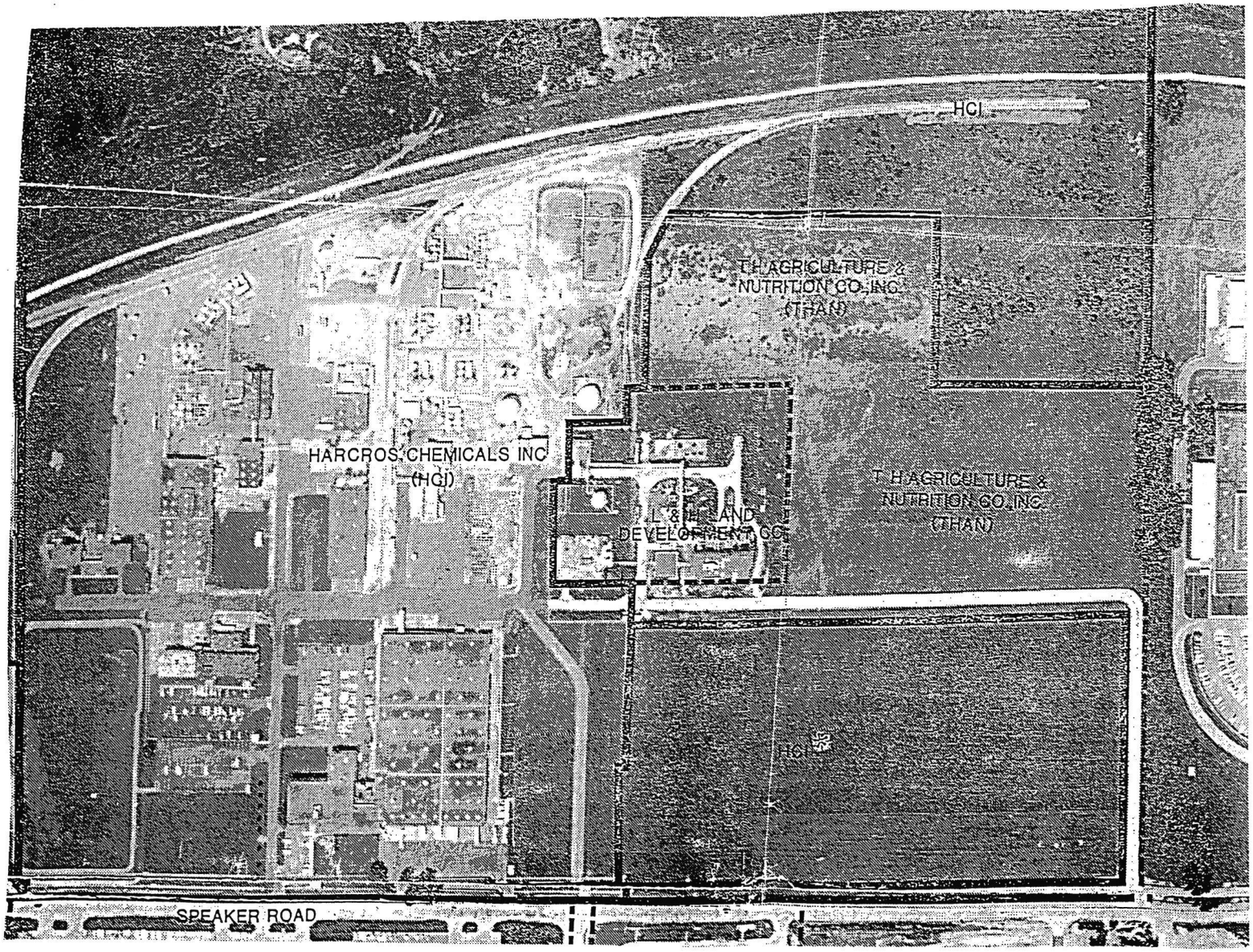
Nebraska National Climate Office. *High Plains Climate Center,* Facsimile from Matt Werner to Scott Ruth. June 20

TH Agriculture & Nutrition Company, Inc. (THAN). 1995. Letter and attachments regarding KDHE information request letter. To Ms. Andrea Austin, KDHE Bureau of Waste Management. From Robert F. Wells, THAN. July 25.

U.S. Fish and Wildlife Service. 1995. *Letter from William H. Gill, U.S. Fish and Wildlife Service* to Jeff Robichaud, SAIC. June 19.

ATTACHMENT

PHOTOGRAPHIC LOG



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T H AGRICULTURE & NUTRITION CO., INC.
KANSAS CITY, KANSAS

FIGURE 1
PROPERTY BOUNDARIES

TETRA TECH EM INC.

SOURCE: MODIFIED FROM BURNS AND MCDONNELL.

T H AGRICULTURE AND NUTRITION COMPANY
Kansas City, Kansas

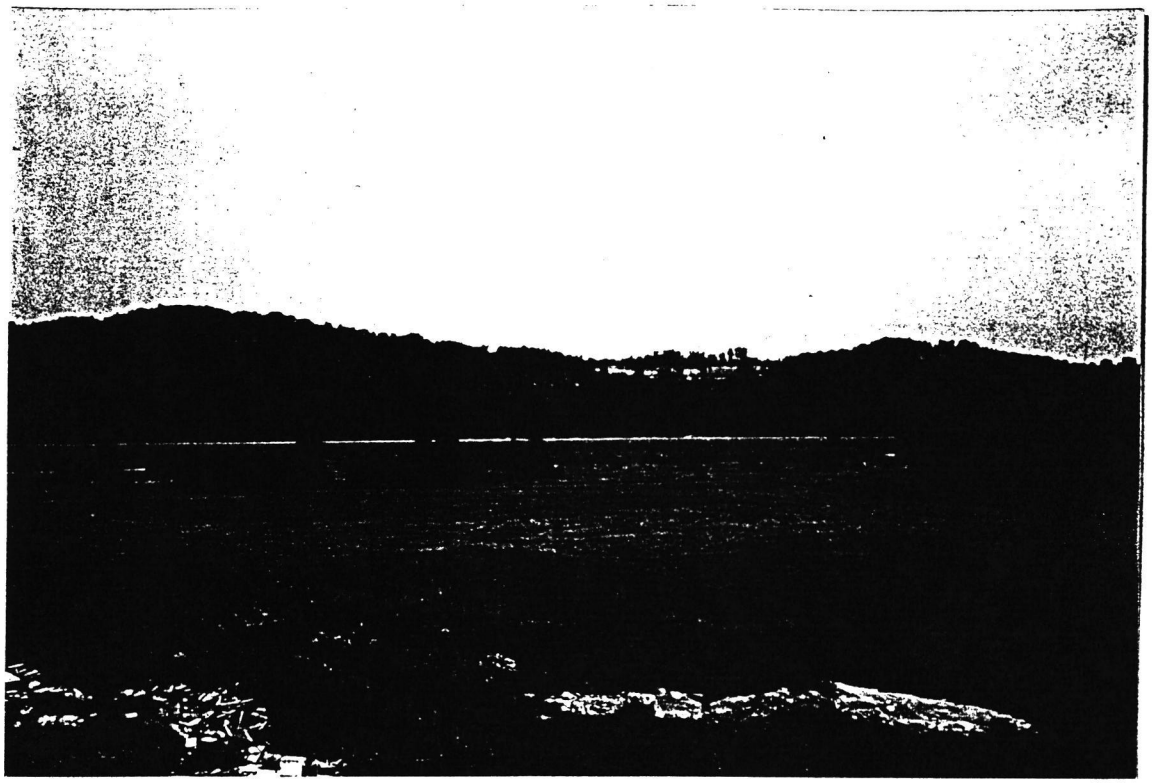

Photo No: 1 **Direction Facing:** Taken from the roof top of Daitom Building **Photographer:** Jeffrey Robichaud (SAIC)
Date: Unknown **Description:** Former surface impoundment.

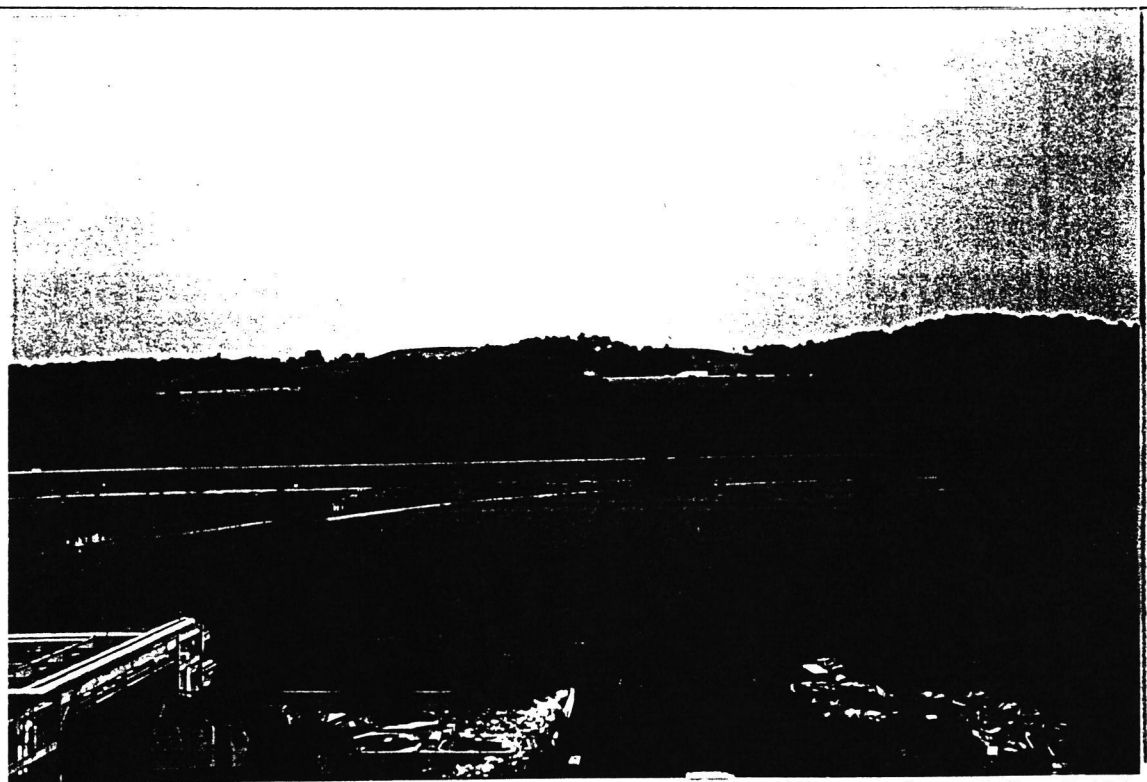

Photo No: 2 **Direction Facing:** Taken from the roof top of Daitom Building **Photographer:** Jeffrey Robichaud (SAIC)
Date: Unknown **Description:** Former surface impoundment.

T H AGRICULTURE AND NUTRITION COMPANY
Kansas City, Kansas

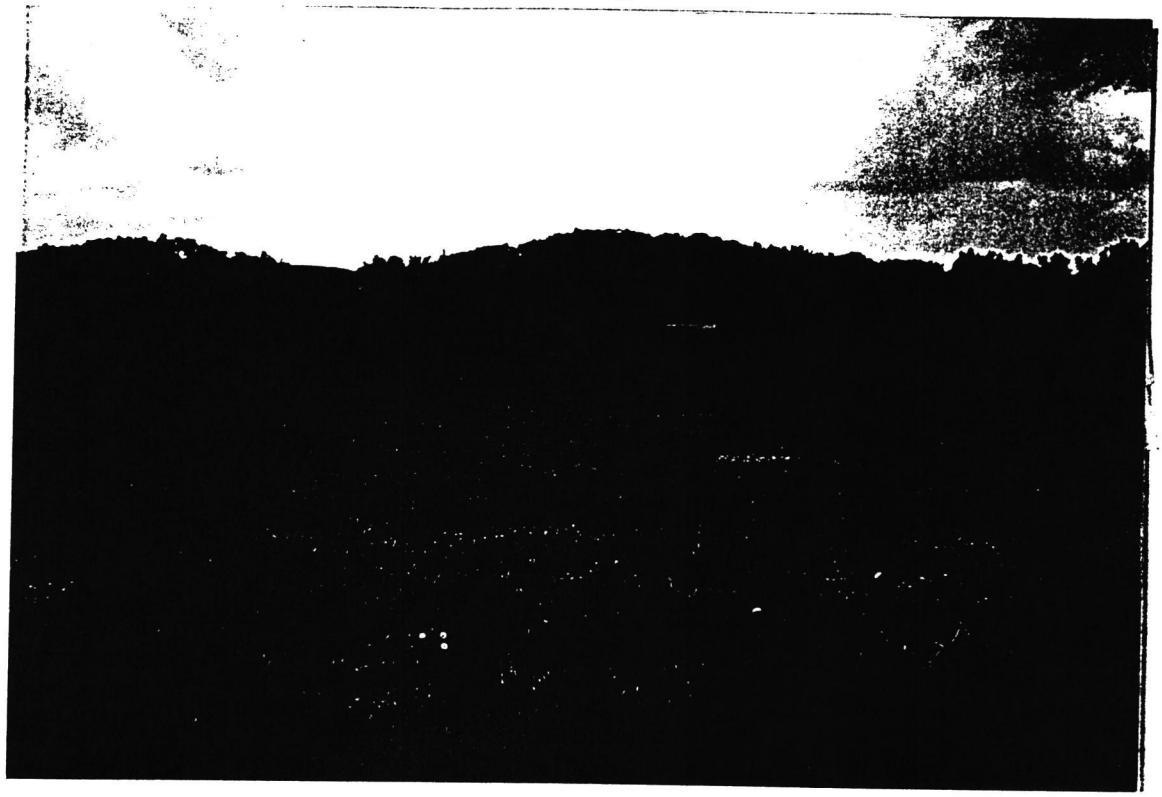

Photo No: 3 **Direction Facing:** Northeast **Photographer:** Jeffery Robichaud (SAIC)
Date: 06/27/95 **Description:** Former THAN surface impoundment (the area behind the fence). Monitoring well in the foreground.